

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Applicant: **Andreas LINGENS et al.**
Filed: As national phase of International Application No. PCT/EP04/10334, filed on September 15, 2004
Application No.: 10/572,194 Confirmation No.: 2636
Examiner: Tu Minh NGUYEN Attorney Docket: 5041.1003
Art Unit: 3748 Customer No.: 23280
Title: **METHOD AND DEVICE FOR THE COUNTERPRESSURE-SAFE SEPARATION OUT AND ELIMINATION OF PARTICLES FROM FLUID STREAMS**

Mail Stop: APPEAL BRIEF – PATENTS
Commissioner for Patents
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January 27, 2011

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

Sir:

Appellants submit this brief for the consideration of the Board of Patent Appeals and Interferences (the "Board") in support of their appeal of the Rejection dated August 2, 2010 in this application. The statutory fee of \$540.00 is paid herewith using Deposit Account No. 50-0552. If any additional fees are deemed to be due at this time, the Assistant Commissioner is authorized to charge payment of the same to Deposit Account No. 50-0552.

REAL PARTY IN INTEREST

The real party in interest is Deutz AG, a corporation having a place of business in Koeln, Germany, and the assignee of the entire right, title and interest in the above-identified patent application. The invention was assigned to Deutz AG by an assignment from inventors Andreas Lingens, Karl-Heinz Breuer and Rolf Miebach. The assignment was recorded on September 21, 2006 at reel 018314, frame 0927.

I. RELATED APPEALS AND INTERFERENCES

Appellants, their legal representatives, and assignee are not aware of any appeal, interference or judicial proceeding that directly affects, will be directly affected by, or will have a bearing on the Board's decision in this appeal.

II. STATUS OF CLAIMS

Claims 13 to 31 are pending. Claims 13 to 31 have been finally rejected by the Examiner as per the Final Office Action dated August 2, 2010.

The rejection of claims 13 to 31 thus is appealed. A copy of pending claims 13 to 31 is attached hereto as Appendix A.

III. STATUS OF AMENDMENTS

No amendments were filed after the rejection of claims 13 to 31 in the Final Office Action dated August 2, 2010. A Notice of Appeal was filed electrically and received by the U.S.P.T.O. on October 27, 2010.

IV. SUMMARY OF THE CLAIMED SUBJECT MATTER

Independent claim 13 recites a method for operating a filter, the method comprising: forcibly passing a stream of a fluid through a filter wall of the filter from a raw gas side to a clean gas side of the filter so as to separate out particles and particle constituents from the stream (e.g., filter 1, filter wall 8, raw gas channels 3 and clean gas channels 7 in Fig. 1; page 4, line 34 to page 5, line 10, paragraph [0014]), wherein the particles and particle constituents are collected by the filter wall on the raw gas side (e.g., Fig. 1; page 5, lines 15 to 19, paragraph [0014]); and performing a regeneration process on the filter during operation of the filter to remove particles from the filter wall (e.g., Fig. 1; page 5, lines 19 to 21, paragraph [0014]) and moving particle constituents not removed from the raw gas side of the filter by the regeneration process to a receiving device disposed downstream of at least a portion of the filter by forcibly passing a stream of fluid from the raw gas side through the filter so that the particle constituents are carried by the fluid to the receiving device (e.g., receiving device 5 in Fig. 1; page 2, lines 2 to 15, paragraph [0004]; page 5, lines 19 to 26, paragraph [0014]).

Independent claim 19 recites a method for operating a filter including a plurality of filter walls forming a plurality of channels which are closed by a closure wall configured to be partially opened (e.g., filter 1, filter wall 8, raw gas channels 3, clean gas channels 7 and closure wall 24 (indicated in Replacement Sheet submitted August 13, 2009) in Fig. 1; page 2, lines 15 to 31, paragraph [0004]; page 4, line 34 to page 5, line 10, paragraph [0014]), the method comprising: forcibly passing a stream of a fluid through the filter walls of the filter from a raw gas side to a clean gas side of the filter so as to separate out particles and particle constituents from the stream (e.g., page 4, line 34 to page 5, line 10, paragraph [0014]), wherein the particles and particle constituents are collected on the raw gas side (e.g., Fig. 1; page 5, lines 15 to 19, paragraph [0014]); and performing a regeneration process on the filter during operation of the filter to remove particles from the filter wall (e.g., Fig. 1; page 5, lines 19 to 21, paragraph [0014]) and disposing of the particle constituents not removed from the raw gas side of the filter by the regeneration process by flowing fluid from the raw gas side to the clean side and forcing the particle constituents through the channels toward the closure wall (e.g., receiving device 5 in Fig. 1; page 2, lines 2 to page 3, line 7, paragraphs [0004] and [0005]; page 5, lines 19 to 26, paragraph [0014]).

Independent claim 29 recites a filter comprising: a filter wall dividing a clean gas side and a raw gas side of the filter and configured to separate out particles and particle constituents from a stream of fluid passing flowing from the raw gas side through the filter wall and to enable the particles to be removed in a regeneration process (e.g., filter wall 8, raw gas channels 3 and clean gas channels 7 in Fig. 1; page 4, line 34 to page 5, line 10, paragraph [0014]); and a receiving device located downstream of at least a portion of the filter wall configured to receive a flow of the fluid from the raw gas side of the filter therethrough and to receive and hold the particle constituents (e.g., receiving device 5 in Fig. 1; page 5, lines 4 to 26, paragraph [0014]), the filter wall and receiving device being arranged such that the stream of fluid passing through the filter wall from the raw gas side forces the particle constituents into the receiving device (e.g., page 2, lines 2 to page 3, line 7, paragraphs [0004] and [0005]; page 5, lines 19 to 26, paragraph [0014]).

Independent claim 31 recites a filter comprising: a filter wall dividing a clean gas side and a raw gas side of the filter and configured to separate out particles and particle constituents from a stream of fluid passing through the filter wall and to enable the particles to be removed in a regeneration process (e.g., filter wall 8 in Fig. 1; page 4, line 34 to page 5, line 10, paragraph [0014]), wherein the filter wall forms a plurality of channels on the raw gas side, (e.g., raw gas channels 3 in Fig. 1; page 4, line 34 to page 5, line 10, paragraph [0014]), each channel being closed by a closure wall located downstream of at least a portion of the filter wall, the closure wall configured to be at least partially openable so as to enable disposal of the particle constituents (e.g., closure wall 24 (indicated in Replacement Sheet submitted August 13, 2009) in Fig. 1; page 2, lines 2 to page 3, line 7, paragraphs [0004] and [0005]; page 4, line 34 to page 5, line 10, paragraph [0014]).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 13 to 26 and 28 to 31 were rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi (U.S. Patent 5,966,928) in view of Levendis et al. (U.S. Patent 5,253,476). Claim 27 was rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi in view of Levendis et al. and Khair et al. (U.S. Patent 6,718,757).

VII. ARGUMENTS

A. Rejections under 35 U.S.C. 103(a): Igarashi and Levendis et al.

Claims 13 to 26 and 28 to 31 were rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi (U.S. Patent 5,966,928) in view of Levendis et al. (U.S. Patent 5,253,476).

Igarashi discloses a filter including rectangular filter plates 11 separated from each other by spacers 22. (Fig. 1; col. 1, lines 21 to 30). Filter plates 11 each have a first passage 14 and each of spacers 22 define a second passage 24. (Id.). Exhaust gas containing particulates are introduced into the first passages 14 from an inlet chamber 62 and passed through filter plates 11 into second passages 24, such that particulates of large diameter in the exhaust gas are deposited on the wall surfaces of first passages 14 and dedusted exhaust gas H is discharged through an exhaust outlet pipe 58. (Figs. 1, 2; col. 1, lines 31 to 39 and 58 to 67). After exhaust gas has been passed through the first and second passages 14, 24 for a predetermined period of time, **cleaning air is passed momentarily in a direction reverse to the flow direction of exhaust gas.** (Col. 1, lines 44 to 52). Compressed air is supplied from an air tank S via a nozzle 75 and is jetted into exhaust outlet pipe 58 and through second passages 24. (Col. 2, lines 1 to 14). The air then flows through filter plates 11 into the first passages 14, thereby removing the deposited particulates from the wall surfaces of the first passages 14, and thus regenerating the filter by **reverse cleaning.** (Col. 1, lines 44 to 52; col. 2, lines 15 to 24). The particulates removed from the peripheral wall surfaces of first passages 14 are dropped into a hopper 68 through a particulate discharge surface 13 of filter 1 and are incinerated by heat from an ignition heater 66 provided in hopper 68. (Col. 1, line 52 to 57; col. 2, lines 16 to 26).

Levendis et al. discloses a system 10 including a particulate trap or filter 14 inside a casing member 12. (Fig. 1; col. 3, lines 25 to 33). Engine exhaust 20 is introduced a first side of filter 14 through a valve 22 so exhaust 20 passes through filter and soot, ash and PAH particulate in exhaust 20 are trapped in filter 14. (Fig. 1; col. 3, lines 58 to 62; col. 5, lines 57 to 65). A compressed air tank 16 is positioned on a second side of filter 14, opposite the first side, and is coupled through a valve 18 to filter 14. (Fig. 1; col. 3, lines 58 to 62). **Air from compressed air tank 16 is pulsed through filter 14 in the opposite direction of exhaust 20 to dislodge the soot**

and ash entrapped in the filter 14 and force the soot and ash to an electric burner 24 on the first side of filter 14. (Fig. 1; col. 6, lines 10 to 50).

1. Independent Claim 13

Claim 13 recites “[a] method for operating a filter, the method comprising:

forcibly passing a stream of a fluid through a filter wall of the filter from a raw gas side to a clean gas side of the filter so as to separate out particles and particle constituents from the stream, wherein the particles and particle constituents are collected by the filter wall on the raw gas side; and

performing a regeneration process on the filter during operation of the filter to remove particles from the filter wall and moving particle constituents not removed from the raw gas side of the filter by the regeneration process to a receiving device disposed downstream of at least a portion of the filter by forcibly passing a stream of fluid from the raw gas side through the filter so that the particle constituents are carried by the fluid to the receiving device.”

It is respectfully submitted that neither Igarashi nor Levendis et al., alone or in combination, discloses or makes obvious “moving particle constituents not removed from the raw gas side of the filter by the regeneration process to a receiving device disposed downstream of at least a portion of the filter by forcibly passing a stream of fluid *from the raw gas side* through the filter so that the particle constituents are carried by the fluid to the receiving device” as recited in claim 13. The Examiner appears to rely on some combination of Figs. 1 and 2 of Igarashi and Fig. 1 of Levendis et al. as teaching these limitations of claim 13. As discussed above in describing Igarashi, the only process for removing matter from filter plates 11 in Figs. 1, 2 of Igarashi involves pulsing compressed air from air tank S via nozzle 75 through filter plates 11 to remove the deposited particulates from filter plates 11 and drop the removed particulates into hopper 68. Thus, in Igarashi, air is forcibly passed from the clean gas side through filter plates 11 to remove the deposited particulates from filter plates 11, **not from the raw gas side as** clearly required by claim 13. Furthermore, Levendis et al. operates in a similar manner as Igarashi. In Levendis et al., as discussed above, air from compressed air tank 16 is pulsed through filter 14 in the opposite direction of exhaust 20 to dislodge the soot and ash entrapped in the filter 14. Thus, in Levendis et al., air is forcibly passed from the clean gas side through filter

14 to remove the soot and ash from filter 14, **not from the raw gas side** as clearly required by claim 13. Because neither Igarashi nor Levendis et al. discloses these feature of claim 13, claim 13 is clearly not unpatentable as obvious in view of any combination of Igarashi and Levendis et al.

It is respectfully submitted that the Examiner's statements in the Advisory Action further illustrate the unreasonableness of the Examiner's interpretation of the claim language and Levendis et al. The Advisory Action, at page 2, states:

Levendis et al. teaches pulsing a compressed air in a direction opposite to the exhaust gas flow. Since the exhaust gas flow is continuous with time; and the pulsed compressed air is not continuous with time (i.e., there are periods that there is no or little flow of compressed air), the compressed air from a previous pulse actually flows along a direction with the exhaust gas during periods of no or little flow of compressed air. As such, Levendis et al. teach a step of passing a stream of fluid (compressed air) from the raw gas side through a filter.

Thus, it is respectfully submitted that the Examiner's reasoning ignores the language of claim 13 and the explicit teachings of Levendis et al. and is erroneous for a number of reasons. Claim 13 recites "moving particle constituents not removed from the raw gas side of the filter by the regeneration process to a receiving device disposed downstream of at least a portion of the filter by forcibly passing a stream of fluid from the raw gas side through the filter so that the particle constituents are carried by the fluid to the receiving device." First, Levendis et al. specifically teaches that during a reverse-flow regeneration mode, while compressed air is coupled to filter 14 to force soot and ash from filter 14 into electric burner 24, valves 18, 26, 30 are open and valves 22, 28 are closed. (See Fig. 1, page 6, lines 10 to 50). During the reverse-flow regeneration mode, exhaust 20 is blocked from filter 14 by closed valve 22 and flows through open valve 30 to ambient air, while compressed air flows through open valve 18 and directly through filter 14, then through open valve 26 and into electric burning 24. The compressed air is prevented from mixing with exhaust 20 by closed valve 22. Thus, it is respectfully submitted that the Examiner statement that "the compressed air from a previous pulse actually flows along a direction with the exhaust gas during periods of no or little flow of compressed air" is clearly wrong.

Second, regardless of whether the compressed air from tank 16 ends up on the raw gas side of filter 14 in Levendis et al., the **compressed air was forcibly passed from the clean gas**

side through filter 14 to carry soot and ash to electric burner 24. The “so that” language of claim 13 clearly requires that the act of “forcibly passing a stream of fluid from the raw gas side through the filter” causes “the particle constituents [to be] carried by the fluid to the receiving device.” Even assuming the Examiner’s unsupported assumption that “the compressed air from a previous pulse actually flows along a direction with the exhaust gas during periods of no or little flow of compressed air” is correct, in no way does the Examiner’s assumption indicate that the air passed back through filter 14 would cause ash and soot to be carried to electric burner 24. Any air that would pass from the exhaust side of filter 14 through filter 14 would simply cause ash and soot to be trapped in filter 14.

Third, it is respectfully submitted that it is clear from Levendis et al. that the compressed air that is passed through filter 14 from the clear air side is transported away from electric burner device 24 without reentering into casing member 12 or the area of valve 22. As discussed with respect to the burner of Figs. 6a and 6b, the compressed air enters burner 24 through a tangential inlet 72, carries soot and ash to heater 62 and then exits the burner 24 from an exit at filter 66, leaving electric burner 24 in a direction that is perpendicular to the direction the air entered electric burner. Thus, the compressed air in Levendis et al. that carries soot and ash to heater 62 does not “flow[] along a direction with the exhaust gas during periods of no or little flow of compressed air” as alleged by the Examiner.

Furthermore, it is respectfully submitted that the Examiner has not established a *prima facie* of obviousness with respect to claim 13 because the Examiner’s reasoning for combining Igarashi and Levendis et al. to meet the limitations of claim 13 is completely conclusory. The Examiner merely asserts that such a combination would have been obvious “since the use thereof would have been routinely practiced by those with ordinary skill in the art to reliably and effectively remove harmful soot and ash emissions from an exhaust stream.” (Final Office Action of August 2, 2010, page 4). It is respectfully submitted that because the Examiner has not articulated reasoning based on a rational underpinning of evidence or knowledge of one of skill in the art at the time of the present invention establishing *how* one of ordinary skill in art would have modified Igarashi in view of Levendis to meet the limitations of claim 13 or *why* such a modification would “reliably and effectively remove harmful soot and ash emissions from an

exhaust stream.” (See MPEP 2142: *KSR International Co. v. Teleflex Inc.*, 383 127 S. Ct. 1727, 1740-41 (2007): “[R]ejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”). Because the Examiner has not provided such articulated reasoning, the rejection of claim 13 should be reversed for this additional reason.

Based on the foregoing, reversal of the rejection under 35 U.S.C. 103(a) of claim 13 and its dependent claims is respectfully requested.

a. Dependent Claim 16: Argued Separately

Dependent claim 16 recites “[t]he method as recited in claim 13, wherein the moving of the particle constituents is performed continuously during operation of the filter.”

The Examiner alleges that Figs. 1 and 2 of Igarashi disclose the limitations of claim 16. However, it is respectfully submitted that it is clear from column 1, lines 44 to 52 and column 2, lines 1 to 24 of Igarashi, that the removing of the deposited particles from the peripheral wall surfaces in Figs. 1 and 2 of Igarashi is performed periodically for predetermined periods of time and not “continuously” as recited in claim 16.

For this additional reason, reversal of the rejection under 35 U.S.C. 103(a) of claim 16 is respectfully requested.

b. Dependent Claim 21: Argued Separately

Dependent claim 21 recites “[t]he method as recited in claim 13, wherein the forcibly passing a stream of fluid through the filter so that the particle constituents are carried by the fluid to the receiving device includes feeding a pressurized medium into the filter on the raw gas side to move the removed particle constituents to the receiving device.”

It is respectfully submitted that neither Igarashi nor Levendis et al., alone or in combination, discloses or makes obvious “feeding a pressurized medium into the filter on the raw gas side to move the removed particle constituents to the receiving device” as recited in claim 21. Igarashi clearly teaches pulsing compressed air from air tank S via nozzle 75 through

filter plates 11 to remove the deposited particulates from filter plates 11 and drop the removed particulates into hopper 68. Thus, in Igarashi, pressurized air is fed into filter plates 11 from air tank S on the clean gas side of filter plates 11, not into filter plates 11 on the clean gas side of filter plates 11. Similarly, in Levendis et al., pressurized air is fed into filter 14 from compressed air tank 16 on the clean gas side of filter 14.

For this additional reason, reversal of the rejection under 35 U.S.C. 103(a) of claim 21 is respectfully requested.

c. Dependent Claim 25: Argued Separately

Dependent claim 25 recites “[t]he method as recited in claim 13, wherein the forcibly passing a stream of fluid through the filter so that the particle constituents are carried by the fluid to the receiving device includes a step of passing a medium that moves the removed particle constituents to the receiving device through the receiving device and out of a flow outlet leading out of the receiving device and into the clean gas side.”

It is respectfully submitted that neither Igarashi nor Levendis et al., alone or in combination, discloses or makes obvious “passing a medium that moves the removed particle constituents to the receiving device through the receiving device and out of a flow outlet leading out of the receiving device and into the clean gas side” as recited in claim 25. The Examiner alleges that Figs. 1 and 2 of Igarashi teach the limitations of claim 25. However, it is respectfully submitted that there is absolutely no indication in Igarashi that the air from tank S, which carries deposited particulates from filter plates 11 to hopper 68, flows through hopper 68 and out of a flow outlet leading out of hopper 68 and into outlet pipe 58.

For this additional reason, reversal of the rejection under 35 U.S.C. 103(a) of claim 25 is respectfully requested.

d. Dependent Claim 26: Argued Separately

Dependent claim 26 recites “[t]he method as recited in claim 13, wherein the forcibly passing a stream of fluid through the filter so that the particle constituents are carried by the fluid to the receiving device includes closing an outlet leading out of the clean gas side of the filter and

passing a medium that moves the removed particle constituents to the receiving device through the receiving device and out of a flow outlet leading out of the receiving device.”

It is respectfully submitted that neither Igarashi nor Levendis et al., alone or in combination, discloses or makes obvious “closing an outlet leading out of the clean gas side of the filter and passing a medium that moves the removed particle constituents to the receiving device through the receiving device and out of a flow outlet leading out of the receiving device” as recited in claim 26. The Examiner alleges that the closing of exhaust valve 92 discussed with respect to Figs. 1 and 2 of Igarashi meets the limitations of claim 26. Claim 26 is dependent on claim 13, which requires that the stream of fluid passed through the filter is from the raw gas side. It is respectfully submitted that one of skill in the art would not have passed air from inlet chamber 62, i.e., the raw gas side of filter plates 11, and closed exhaust valve 92 at the same time. Furthermore, such a passing of air from the raw gas side would not cause particles to through and out of hopper 68 because gas from the raw gas side in Igarashi is prevented from flowing into and through hopper 68 by particulate discharge surfaces 13. (Col. 1, lines 34 and 35).

For this additional reason, reversal of the rejection under 35 U.S.C. 103(a) of claim 26 is respectfully requested.

2. Independent Claim 19: Argued Separately

Claim 19 recites “[a] method for operating a filter including a plurality of filter walls forming a plurality of channels which are closed by a closure wall configured to be partially opened, the method comprising:

forcibly passing a stream of a fluid through the filter walls of the filter from a raw gas side to a clean gas side of the filter so as to separate out particles and particle constituents from the stream, wherein the particles and particle constituents are collected on the raw gas side; and

performing a regeneration process on the filter during operation of the filter to remove particles from the filter wall and disposing of the particle constituents not removed from the raw gas side of the filter by the regeneration process by flowing fluid from the raw gas side to the clean side and forcing the particle constituents through the channels toward the closure wall.”

It is respectfully submitted that neither Igarashi nor Levendis et al., alone or in combination, discloses or makes obvious “disposing of the particle constituents not removed from the raw gas side of the filter by the regeneration process by flowing fluid from the raw gas side to the clean side and forcing the particle constituents through the channels toward the closure wall” as recited in claim 19. As similarly discussed with respect to claim 13, in Igarashi, air is forcibly passed from the clean gas side through filter plates 11 to remove the deposited particulates from filter plates 11, **not from the raw gas side** as clearly required by claim 19. Also, in Levendis et al., air is forcibly passed from the clean gas side through filter 14 to remove the soot and ash from filter 14, **not from the raw gas side** as clearly required by claim 19.

Furthermore, it is respectfully submitted that neither Igarashi nor Levendis et al., alone or in combination, discloses or makes obvious the “disposing” of claim 19 because particle constituents are not forced “toward a closure wall” that closes a plurality of channel as recited in claim 19. **It is also respectfully submitted that the Examiner is in clear error for failing to address these limitations of claim 19.**

It is also respectfully submitted that the Examiner’s statements in the Advisory Action ignore the language of claim 19 and the explicit teachings of Levendis et al. and are erroneous for a number of reasons. Claim 19 recites “disposing of the particle constituents not removed from the raw gas side of the filter by the regeneration process by flowing fluid from the raw gas side to the clean side and forcing the particle constituents through the channels toward the closure wall.” First, Levendis et al. specifically teaches that during a reverse-flow regeneration mode, while compressed air is coupled to filter 14 to force soot and ash from filter 14 into electric burner 24, valves 18, 26, 30 are open and valves 22, 28 are closed. (See Fig. 1, page 6, lines 10 to 50). During the reverse-flow regeneration mode, exhaust 20 is blocked from filter 14 by closed valve 22 and flows through open valve 30 to ambient air, while compressed air flows through open valve 18 and directly through filter 14, then through open valve 26 and into electric burning 24. The compressed air is prevented from mixing with exhaust 20 by closed valve 22. Thus, it is respectfully submitted that the Examiner statement that “the compressed air from a previous pulse actually flows along a direction with the exhaust gas during periods of no or little flow of compressed air” is clearly wrong.

Second, regardless of whether the compressed air from tank 16 ends up on the raw gas side of filter 14, the **compressed air was forcibly passed from the clean gas side** through filter 14 to carry soot and ash to electric burner 24. The language of claim 19 clearly requires that the act of “disposing” the particular constituents is done by “flowing fluid from the raw gas side to the clean side and forcing the particle constituents through the channels toward the closure wall.”

Even assuming the Examiner’s unsupported assumption that “the compressed air from a previous pulse actually flows along a direction with the exhaust gas during periods of no or little flow of compressed air” is correct, in no way does the Examiner’s assumption indicate that the air passed back through filter 14 is actually part of “disposing” the particle constituents. Any air that would pass from the exhaust side of filter 14 through filter 14 would simply cause ash and soot to be trapped in filter 14.

Third, it is respectfully submitted that it is clear from Levendis et al. that the compressed air that is passed through filter 14 from the clean air side is transported away from electric burner device 24 without reentering into casing member 12 or the area of valve 22. As discussed with respect to the burner of Figs. 6a and 6b, the compressed air enters burner 24 through a tangential inlet 72, carries soot and ash to heater 62 and then exits the burner 24 from an exit at filter 66, leaving electric burner 24 in a direction that is perpendicular to the direction the air entered electric burner. Thus, the compressed air in Levendis et al. that carries soot and ash to heater 62 does not “flow[] along a direction with the exhaust gas during periods of no or little flow of compressed air” as alleged by the Examiner.

Furthermore, it is respectfully submitted that the Examiner has not established a prima facie of obviousness with respect to claim 19 because the Examiner’s reasoning for combining Igarashi and Levendis et al. to meet the limitations of claim 19 is completely conclusory. The Examiner merely asserts that such a combination would have been obvious “since the use thereof would have been routinely practiced by those with ordinary skill in the art to reliably and effectively remove harmful soot and ash emissions from an exhaust stream.” (Final Office Action of August 2, 2010, page 4). It is respectfully submitted that because the Examiner has not articulated reasoning based on a rational underpinning of evidence or knowledge of one of skill in the art at the time of the present invention establishing **how** one of ordinary skill in art would

have modified Igarashi in view of Levendis to meet the limitations of claim 19 or *why* such a modification would “reliably and effectively remove harmful soot and ash emissions from an exhaust stream.” (See MPEP 2142: *KSR International Co. v. Teleflex Inc.*, 383 127 S. Ct. 1727, 1740-41 (2007): “[R]ejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”). Because the Examiner has not provided such articulated reasoning, the rejection of claim 19 should be reversed for this additional reason.

Based on the foregoing, reversal of the rejection under 35 U.S.C. 103(a) of claim 19 is respectfully requested.

3. Independent Claim 29: Argued Separately

Claim 29 recites “[a] filter comprising:

a filter wall dividing a clean gas side and a raw gas side of the filter and configured to separate out particles and particle constituents from a stream of fluid passing flowing from the raw gas side through the filter wall and to enable the particles to be removed in a regeneration process; and

a receiving device located downstream of at least a portion of the filter wall configured to receive a flow of the fluid from the raw gas side of the filter therethrough and to receive and hold the particle constituents, the filter wall and receiving device being arranged such that the stream of fluid passing through the filter wall from the raw gas side forces the particle constituents into the receiving device.”

It is respectfully submitted that neither Igarashi nor Levendis et al., alone or in combination, discloses or makes obvious “a receiving device located **downstream** of at least a portion of the filter wall configured to receive a flow of the fluid from the raw gas side of the filter therethrough and to receive and hold the particle constituents, the filter wall and receiving device being arranged such that the **stream of fluid passing through the filter wall from the raw gas side forces the particle constituents into the receiving device**” as recited in claim 29. The Examiner alleges that some combination of the arrangement of hopper 68 of Igarashi and electric burner 24 of Levendis et al. corresponds to the “receiving device” of claim 29. As

similarly discussed above, Igarashi involves pulsing compressed air from air tank S via nozzle 75 through filter plates 11 to remove the deposited particulates from filter plates 11 and drop the removed particulates into hopper 68. Thus, hopper 68 and filter plates 11 in Igarashi are not arranged such that a stream of fluid passing through filter plates 11 **from a raw gas side** of filter plates 11 forces deposited particulates in filter plates 11 into hopper 68. Furthermore, the system of Levendis et al. is configured in a similar manner as the system of Igarashi. In Levendis et al., as discussed above, air from compressed air tank 16 is pulsed through filter 14 in the opposite direction of exhaust 20 to dislodge the soot and ash entrapped in the filter 14. Thus, electric burner 24 and filter 14 in Levendis et al. are not arranged such that a stream of fluid passing through filter 14 **from a raw gas side** of filter 14 forces soot and ash in filter 14 into electric burner 24. Because neither Igarashi nor Levendis et al. discloses this arrangement of claim 29, claim 29 is clearly not unpatentable as obvious in view of any combination of Igarashi and Levendis et al.

Furthermore, as discussed above with respect to claims 13 and 19, it is respectfully submitted that the Examiner's interpretation of Levendis et al. is contrary to the explicit teachings of Levendis et al. and does not in any way teach that arrangement between the "receiving device" and the "filter wall." Levendis et al. specifically teaches that during a reverse-flow regeneration mode, while compressed air is coupled to filter 14 to force soot and ash from filter 14 into electric burner 24, valves 18, 26, 30 are open and valves 22, 28 are closed. (See Fig. 1, page 6, lines 10 to 50). During the reverse-flow regeneration mode, exhaust 20 is blocked from filter 14 by closed valve 22 and flows through open valve 30 to ambient air, while compressed air flows through open valve 18 and directly through filter 14, then through open valve 26 and into electric burning 24. The compressed air is prevented from mixing with exhaust 20 by closed valve 22. Thus, it is respectfully submitted that no combination of Igarashi and Levendis et al. teaches "the filter wall and receiving device being arranged such that the stream of fluid passing through the filter wall from the raw gas side forces the particle constituents into the receiving device" as recited in claim 29.

Furthermore, it is respectfully submitted that the Examiner has not established a prima facie of obviousness with respect to claim 29 because the Examiner's reasoning for combining

Igarashi and Levendis et al. to meet the limitations of claim 29 is completely conclusory. The Examiner merely asserts that such a combination would have been obvious “since the use thereof would have been routinely practiced by those with ordinary skill in the art to reliably and effectively remove harmful soot and ash emissions from an exhaust stream.” (Final Office Action of August 2, 2010, page 3). It is respectfully submitted that because the Examiner has not articulated reasoning based on a rational underpinning of evidence or knowledge of one of skill in the art at the time of the present invention establishing *how* one of ordinary skill in art would have modified Igarashi in view of Levendis to meet the limitations of claim 29 or *why* such a modification would “reliably and effectively remove harmful soot and ash emissions from an exhaust stream.” (See MPEP 2142: *KSR International Co. v. Teleflex Inc.*, 383 127 S. Ct. 1727, 1740-41 (2007): “[R]ejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”). Because the Examiner has not provided such articulated reasoning, the rejection of claim 29 should be reversed for this additional reason.

Based on the foregoing, reversal of the rejection under 35 U.S.C. 103(a) of claim 29 and its dependent claim is respectfully requested.

a. Dependent Claim 30: Argued Separately

Dependent claim 30 recites “[t]he filter as recited in claim 29, wherein the receiving device is removably connectable to the filter wall.”

It is respectfully submitted that neither Igarashi nor Levendis et al., alone or in combination, discloses or makes obvious “the receiving device is removably connectable to the filter wall” as recited in claim 25. The Examiner alleges that hopper 68 is removably connectable to filter plates 11; however, it is respectfully submitted that there is absolutely no indication in Igarashi that this is true nor does the Examiner even attempt to point to a portion of Igarashi where it is taught that hopper 68 is removably connectable to filter plates 11.

For this additional reason, reversal of the rejection under 35 U.S.C. 103(a) of claim 30 is respectfully requested.

4. Independent Claim 31: Argued Separately

Claim 31 recites “[a] filter comprising:

a filter wall dividing a clean gas side and a raw gas side of the filter and configured to separate out particles and particle constituents from a stream of fluid passing through the filter wall and to enable the particles to be removed in a regeneration process, wherein the filter wall forms a plurality of channels on the raw gas side, each channel being closed by a closure wall located downstream of at least a portion of the filter wall, the closure wall configured to be at least partially openable so as to enable disposal of the particle constituents.”

It is respectfully submitted that neither Igarashi nor Levendis et al., alone or in combination, discloses or makes obvious **“each channel being closed by a closure wall located downstream of at least a portion of the filter wall, the closure wall configured to be at least partially openable so as to enable disposal of the particle constituents”** as recited in claim 31. It is also respectfully submitted that the Examiner is in clear error for failing to address these limitations of claim 31. **Both the Final Office Action and the Advisory Action completely fail to address these limitations.**

Furthermore, it is respectfully submitted that the Examiner has not established a prima facie of obviousness with respect to claim 31 because the Examiner’s reasoning for combining Igarashi and Levendis et al. to meet the limitations of claim 31 is completely conclusory. The Examiner merely asserts that such a combination would have been obvious “since the use thereof would have been routinely practiced by those with ordinary skill in the art to reliably and effectively remove harmful soot and ash emissions from an exhaust stream.” (Final Office Action of August 2, 2010, page 4). It is respectfully submitted that because the Examiner has not articulated reasoning based on a rational underpinning of evidence or knowledge of one of skill in the art at the time of the present invention establishing **how** one of ordinary skill in art would have modified Igarashi in view of Levendis to meet the limitations of claim 31 or **why** such a modification would “reliably and effectively remove harmful soot and ash emissions from an exhaust stream.” (See MPEP 2142: *KSR International Co. v. Teleflex Inc.*, 383 127 S. Ct. 1727, 1740-41 (2007): “[R]ejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some **rational** underpinning

to support the legal conclusion of obviousness.”). Because the Examiner has not provided such articulated reasoning, the rejection of claim 31 should be reversed for this additional reason.

Based on the foregoing, reversal of the rejection under 35 U.S.C. 102(b) of claim 31 is respectfully requested.

Rejection under 35 U.S.C. 103(a)

Claim 27 was rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi in view of Levendis et al. and Khair et al.

Claim 27 is dependent on claim 13. In view of the above arguments with respect to claim 13, reversal of the rejection under 35 U.S.C. 103(a) of claim 27 is respectfully requested.

CONCLUSION

It is respectfully submitted that the application is in condition for allowance. Favorable consideration of this appeal brief is respectfully requested.

Respectfully submitted,
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APPENDIX A:

**PENDING CLAIMS 13 to 31 of
U.S. APPLICATION SERIAL NO. 10/572,194**

Claim 13 (previously presented): A method for operating a filter, the method comprising:

forcibly passing a stream of a fluid through a filter wall of the filter from a raw gas side to a clean gas side of the filter so as to separate out particles and particle constituents from the stream, wherein the particles and particle constituents are collected by the filter wall on the raw gas side; and

performing a regeneration process on the filter during operation of the filter to remove particles from the filter wall and moving particle constituents not removed from the raw gas side of the filter by the regeneration process to a receiving device disposed downstream of at least a portion of the filter by forcibly passing a stream of fluid from the raw gas side through the filter so that the particle constituents are carried by the fluid to the receiving device.

Claim 14 (previously presented): The method as recited in claim 13, wherein the particles include soot and the particle constituents includes ashes.

Claim 15 (previously presented): The method as recited in claim 13, wherein the regeneration process is performed continuously during operation of the filter.

Claim 16 (previously presented): The method as recited in claim 13, wherein the moving of the particle constituents is performed continuously during operation of the filter.

Claim 17 (previously presented): The method as recited in claim 13, wherein the fluid is a gas.

Claim 18 (previously presented): The method as recited in claim 13, wherein the filter is a particle filter for an internal combustion engine.

Claim 19 (previously presented): A method for operating a filter including a plurality of filter walls forming a plurality of channels which are closed by a closure wall configured to be partially opened, the method comprising:

forcibly passing a stream of a fluid through the filter walls of the filter from a raw gas side to a clean gas side of the filter so as to separate out particles and particle constituents from the stream, wherein the particles and particle constituents are collected on the raw gas side; and

performing a regeneration process on the filter during operation of the filter to remove particles from the filter wall and disposing of the particle constituents not removed from the raw gas side of the filter by the regeneration process by flowing fluid from the raw gas side to the clean side and forcing the particle constituents through the channels toward the closure wall.

Claim 20 (previously presented): The method as recited in claim 13, wherein that the fluid stream forcibly passed through the filter so that the particle constituents are carried by the fluid to the receiving device is imparted with a pulsating flow to move the removed particle constituents to the receiving device.

Claim 21 (previously presented): The method as recited in claim 13, wherein the forcibly passing a stream of fluid through the filter so that the particle constituents are carried by the fluid

to the receiving device includes feeding a pressurized medium into the filter on the raw gas side to move the removed particle constituents to the receiving device.

Claim 22 (previously presented): The method as recited in claim 21, wherein the pressurized medium is pressurized air.

Claim 23 (previously presented): The method as recited in claim 13, wherein a portion of the fluid stream flows through the receiving device.

Claim 24 (previously presented): The method as recited in claim 13, wherein the receiving device includes a regenerable filter surface.

Claim 25 (previously presented): The method as recited in claim 13, wherein the forcibly passing a stream of fluid through the filter so that the particle constituents are carried by the fluid to the receiving device includes a step of passing a medium that moves the removed particle constituents to the receiving device through the receiving device and out of a flow outlet leading out of the receiving device and into the clean gas side.

Claim 26 (previously presented): The method as recited in claim 13, wherein the forcibly passing a stream of fluid through the filter so that the particle constituents are carried by the fluid to the receiving device includes closing an outlet leading out of the clean gas side of the filter and passing a medium that moves the removed particle constituents to the receiving device through the receiving device and out of a flow outlet leading out of the receiving device.

Claim 27 (previously presented): The method as recited in claim 13, wherein the regeneration process includes feeding nitrogen dioxide into the filter.

Claim 28 (previously presented): The method as recited in claim 13, wherein the regeneration process is performed thermally.

Claim 29 (previously presented): A filter comprising:

a filter wall dividing a clean gas side and a raw gas side of the filter and configured to separate out particles and particle constituents from a stream of fluid passing flowing from the raw gas side through the filter wall and to enable the particles to be removed in a regeneration process; and

a receiving device located downstream of at least a portion of the filter wall configured to receive a flow of the fluid from the raw gas side of the filter therethrough and to receive and hold the particle constituents, the filter wall and receiving device being arranged such that the stream of fluid passing through the filter wall from the raw gas side forces the particle constituents into the receiving device.

Claim 30 (previously presented): The filter as recited in claim 29, wherein the receiving device is removably connectable to the filter wall.

Claim 31 (previously presented): A filter comprising:

a filter wall dividing a clean gas side and a raw gas side of the filter and configured to

separate out particles and particle constituents from a stream of fluid passing through the filter wall and to enable the particles to be removed in a regeneration process, wherein the filter wall forms a plurality of channels on the raw gas side, each channel being closed by a closure wall located downstream of at least a portion of the filter wall, the closure wall configured to be at least partially openable so as to enable disposal of the particle constituents.

APPENDIX B

Evidence Appendix under 37 C.F.R. §41.37 (c) (ix):

No evidence pursuant to 37 C.F.R. §§1.130, 1.131 or 1.132 and relied upon in the appeal has been submitted by appellants or entered by the examiner.

APPENDIX C

Related proceedings appendix under 37 C.F.R. §41.37 (c) (x):

As stated in "2. RELATED APPEALS AND INTERFERENCES" of this appeal brief, appellants, their legal representatives, and assignee are not aware of any appeal or interference that directly affects, will be directly affected by, or will have a bearing on the Board's decision in this appeal.